

4.0 Judgments of Need

Judgments of need are managerial controls and safety measures believed necessary to prevent or minimize the probability of a recurrence. They flow from the causal factors and are directed at

guiding managers in developing corrective actions. Table 4-1 summarizes the Board's causal factors and judgments of need.

Table 4-1. Causal Factors and Judgments of Need

Related Causal Factors	Judgments of Need
<ul style="list-style-type: none"> The Nuclear Material Technology Division (NMT) failed to issue a work request for an inoperable electrical circuit. NMT failed to adequately define the maintenance evaluation task. LANL failed to provide training on the hazards and design of auxiliary systems. LANL did not ensure that operator training on auxiliary systems was commensurate with assigned duties. 	<ul style="list-style-type: none"> Los Alamos National Laboratory (LANL) needs to ensure that laboratory work planning and control requirements have been effectively implemented at TA-55. This should include work procedures, work practices, and adequacy of corrective actions to address previous problems. LANL needs to reduce reliance on the skill of the worker by balancing this reliance against the hazards, design of barriers, work controls, and worker knowledge.
<ul style="list-style-type: none"> NMT failed to establish effective formality of operations. NMT failed to issue a work request for an inoperable electrical circuit. NMT failed to ensure effective communications between workers in different work groups, between various levels of supervision, and between workers and supervisors. NMT failed to effectively convey roles and responsibilities between facility management units and tenant organizations. LANL failed to effectively disseminate lessons learned to the worker level. NMT failed to effectively implement the "as low as reasonably achievable" (ALARA) concept. 	<ul style="list-style-type: none"> LANL needs to ensure that TA-55 has implemented formality into all aspects of facility operations. This should include developing and implementing organizational controls, lessons learned, records, logs, postings and operator aids to effectively communicate the status of facility systems such as glovebox auxiliary support systems. LANL needs to ensure that responsibility and authority for work are clearly defined so that equipment status (both normal and abnormal) is known by all appropriate elements of the organization.
<ul style="list-style-type: none"> NMT failed to provide appropriate configuration control of glovebox auxiliary systems. 	<ul style="list-style-type: none"> LANL needs to ensure that TA-55 has an effective means of controlling the configuration of glovebox auxiliary systems. This should include establishing a program to compile and maintain as-built design specifications and drawings, establishing requirements for mechanical and electrical system configuration, defining normal or expected valve and component line-ups, and labeling valves and components.

Table 4-1. Causal Factors and Judgments of Need (Continued)

Related Causal Factors	Judgments of Need
<ul style="list-style-type: none"> NMT failed to ensure proper use and installation of mechanical compression fittings on glovebox auxiliary systems. NMT failed to ensure the long-term operability of the isolation valve associated with the airlock dry vacuum system. 	<ul style="list-style-type: none"> LANL needs to ensure the appropriate application of mechanical compression fittings and valves with Teflon® components in glovebox applications. Clear design and application criteria for these components needs to be established and improper applications identified, analyzed, and corrected. LANL needs to develop and implement a process to assure that effective quality assurance practices are in place to verify that existing glovebox and airlock auxiliary systems (such as argon and dry vacuum) are in compliance with applicable codes and requirements. The process should include plans to address any subsequent modifications. The National Nuclear Security Administration/Defense Programs (NNSA/DP) needs to evaluate the application of Teflon® components in nuclear environments (especially in transuranic environments) and ensure the appropriate application for all Department of Energy (DOE) facilities.
<ul style="list-style-type: none"> NMT failed to implement an effective program for analyzing hazards in the workplace. LANL failed to provide training on the hazards and design of auxiliary systems. LANL did not ensure that operator training on auxiliary systems was commensurate with assigned duties. The hazard analysis of TA-55 underestimated the potential consequences from breaches to gloveboxes and related systems. 	<ul style="list-style-type: none"> LANL needs to ensure that an effective program is implemented to analyze the hazards at TA-55 by including potential hazards associated with the failure of glovebox auxiliary systems. Worker training, system design, maintenance requirements, and procedures need to be revised to address these hazards. LANL needs to ensure that all workers are properly trained to identify and respond to workplace hazards, including those associated with potential failures of glovebox auxiliary systems.
<ul style="list-style-type: none"> NMT failed to effectively address mechanical design problems identified with the glovebox-airlock argon/dry vacuum manifold. LANL failed to adequately analyze prior occurrences to identify their root causes. NMT failed to aggressively implement the results of analytical studies on CAM placement, thus increasing the total level of exposure in this accident. LANL failed to effectively disseminate lessons learned to the worker level. 	<ul style="list-style-type: none"> LANL needs to ensure that incidents and occurrences are thoroughly evaluated to determine the root and contributing cause(s) and that resulting lessons learned are disseminated and communicated to all appropriate personnel. LANL needs to ensure that effective corrective actions are developed and implemented and that they provide timely and adequate resolution of the root and contributing causes.

Table 4-1. Causal Factors and Judgments of Need (Continued)

Related Causal Factors	Judgments of Need
<ul style="list-style-type: none"> • NNSA/DP, the Albuquerque Operations Office, and the Los Alamos Area Office failed to provide effective line management oversight. • NMT failed to effectively address mechanical design problems identified with the glovebox-airlock argon/dry vacuum manifold. • NMT failed to aggressively implement results of analytical studies on CAM placement, thus increasing the total level of exposure in this accident. 	<ul style="list-style-type: none"> • The Los Alamos Area Office needs to review and revise as necessary the assignments and activities of the Facility Representatives to ensure that objective and effective line management safety oversight is being performed through the day-to-day monitoring of LANL activities in accordance with the Facility Representative Program Manual. • NNSA/DP needs to ensure that line management oversight process at LANL is being performed and is effective as specified by DOE Policy 450.5, Line Management Oversight, and DOE Standard DOE-STD-1063-97, Facility Representatives.

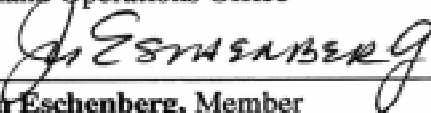
Board Signatures


Date: 4-29-00

Tom Rollow, Chairperson
DOE Accident Investigation Board
U.S. Department of Energy
Office of Environment, Safety and Health


Date: 4-29-00

Mike Cornell, Member
DOE Accident Investigation Board
U.S. Department of Energy
Oakland Operations Office


Date: 29 APR 2000

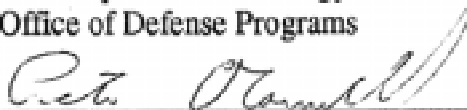
John Eschenberg, Member
DOE Accident Investigation Board
U.S. Department of Energy
Savannah River Operations Office


Date: 04-29-00

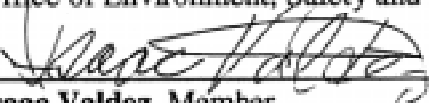
Ali Ghovanlou, Member
DOE Accident Investigation Board
U.S. Department of Energy
Office of Independent Oversight &
Performance Assurance


Date: 04-29-00

Douglas Minnema, Member
DOE Accident Investigation Board
U.S. Department of Energy
Office of Defense Programs


Date: 04-29-00

Pete O'Connell, Member
DOE Accident Investigation Board
U.S. Department of Energy
Office of Environment, Safety and Health


Date: 04-29-00

Isaac Valdez, Member
DOE Accident Investigation Board
U.S. Department of Energy
Albuquerque Operations Office

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